

REMARKS

Reconsideration of this application is requested. Claims 1-9 remain active in the application.

As a preliminary matter, attention is again directed to the certified copy of the priority document submitted with the original application papers on March 21, 2000. To date, applicants have not received an acknowledgement of this document – the printed form on page 1 of paper no. 8 contains no acknowledgement nor does the printed form included with the paper no. 4. The examiner is requested to acknowledge receipt of the filing of this certified copy.

In preparing this response, a typographical error was noted on page 24 of the specification in the notes following Table 3. Amendment is provided above to correct same.

Claim 6 has been amended in order to provide appropriate antecedent basis for the term "monoester content."

The balance of the Official Action relates to art-based rejections based upon three newly cited documents and, in particular, featuring U.S. Patent No. 4,491,378 to Rule. Applicants now address these rejections explaining in more detail the significance of the claims now under review as contrasted with the deficiencies in the documents cited and relied upon.

First, applicants wish to address the examiner's comment at page 3, first three lines of the Official Action. It reads "...one skilled in the art would have expected to have a milk beverage having the cloud point as claimed...." Counsel perceives some confusion as to the examiner's interpretation of the claims now under review.

Applicants' claims are directed to milk beverage compositions such as milk coffee or milk tea (claim 9) which include a specific polyglycerol fatty acid ester which ester (not milk beverage composition) is characterized as having a cloud point of not less than 90°C when measured under certain conditions of concentration and sodium chloride. The objective of the invention is to provide a milk beverage which is capable of withstanding

UHT (ultra high temperature) sterilization. The claimed compositions are capable of maintaining their emulsion stability for long periods of time (specification, pages 2-3).

Applicants' claims require that the beverages contain a polyglycerol fatty acid ester having a cloud point of not less than 90°C. The term "cloud point" refers to the polyglycerol fatty acid ester itself and not the milk beverage composition.

Polyglycerol fatty acid ester is a mixture obtained by reacting a polyglycerin with a fatty acid. Therefore, cloud point referred to in applicants' claims is a property of the resulting fatty acid ester mixture.

The cloud point according to the present invention is determined as follows: First, the polyglycerol fatty acid ester is dispersed in a 20 wt% sodium chloride aqueous solution such that the ester is present in an amount of 1% by weight, and then heated while stirring to form a uniform aqueous solution. The thus obtained uniform aqueous solution of polyglycerol fatty acid ester is shaken and stirred, and then allowed to stand. This procedure is repeated at intervals of 2 to 5°C while increasing the temperature of the aqueous solution within an optional temperature range between 0°C. and 100°C. Then, the temperature at which the polyglycerol fatty acid ester is separated in the form of oil or gel and the aqueous solution becomes heterogeneous, is measured. The temperature at which the aqueous solution reaches such a heterogeneous state, is called "cloud point" (see page 6 of the specification). The cloud point shows a property of polyglycerin itself and does not relate to the drinking condition of the described and claimed milk beverage.

In addition, page 3, lines 1-3 of the Action assumes the cloud point is controlled by the degree of polymerization of glycerin and the type of fatty acid from which the ester(s) is formed. However, the cloud point of the polyglycerol fatty acid ester is not determined by the degree of polymerization of glycerin nor the type of fatty acid. This may be seen from Comparative Example 1 (decaglycerol stearic acid ester B, cloud point=82°C) and Example 5 (decaglycerol stearic acid ester A, cloud point=95°C).

As additional evidence on this point, see the attached article by Katsuragi et al. This article shows that the cloud points of POGEs is different from each other depending

upon the condition of esterification even though the degree of polymerization and type of fatty acid is the same. Details of this publication are:

Foods Food Ingredients J. Jpn. No. 180 (1999) p. 35-44

Authors: Toshiya Katsuragi and Masahiko Ishitobi

Toshiya Katsuragi is one of the joint inventors of the present application.

In the partial English translation attached, production method A is a one step reaction process and production method B is a two step reaction process. Production method A is slightly different from production method B in feed ratio of stearic acid/decaglycerol and catalyst amount. As seen from Table 2, the cloud point of POGE produced by the method A is 82.5°C and the cloud point of POGE produced by the method B is >90°C under measurement conditions of GE 1% solution in aqueous 20% NaCl (same condition of the present invention). Accordingly, POGEs having different cloud points are produced by the different production condition even though the degree of polymerization and kind of fatty acid is the same.

Thus, even though polyglycerol fatty acid esters having the same degree of polymerization of the glycerin component and type of fatty acid, the resulting polyglycerol fatty acid esters do not necessarily have the same cloud point. In addition to the degree of polymerization of glycerin and kind of constituting fatty acid, the cloud point is determined by the degree of esterification and amount of esterification distribution of the various ester products such as monoester-, diester-or other factors.

Polyglycerol fatty acid esters having the cloud point according to the present invention are produced by the two stage reaction described on pages 8-9 in the specification:

"The polyglycerol fatty acid ester having the specified cloud point according to the present invention can be usually produced by reducing the amount of alkali catalyst used, and using a two stage reaction whose second stage is conducted at a higher temperature. For instance, there may be used such a method of conducting the esterification reaction at a temperature of 180 to 260°C, and then continuing the reaction for 1 to 4 hours at a temperature higher by 10 to 50°C than that used in the esterification reaction (refer to Japanese Patent Application Laid-Open (KOAKI) No. 7-145104(1995))." *See also* Production Examples 1 and 2.

On the other hand, in Rule, there is no detailed description of the esterification condition. And also, in Babayan and Seiden, there is no description nor suggestion of a "two stage esterification" that results in the polyglycerol fatty acid esters used in the present invention. In fact, the esterification was conducted by a single stage esterification in the Examples in the references. This means the esters of the references necessarily have a different (lower) cloud point.

The process used to prepare the polyglycerol fatty acid esters used in the present invention is completely different from the processes in the cited references – the cloud point of polyglycerol fatty acid esters produced by the method used in the cited references are lower than the polyglycerol fatty acid esters employed in the present invention and outside the scope of applicants' claims.

Counsel is not able to follow the argument in support of the rejections in the Action, particularly when attention is directed to Rule. As an example, in the Action the Examiner states that "Rule teaches a polyglycerol fatty acid ester having a degree of polymerization of 12-18, and a palmitic acid (col 1+)." I am not able to find the description based on this statement in Rule.

As to the secondary references, while Seiden and Babayan relate to a process for producing polyglycerol fatty acid ester, neither provides a description of using polyglycerol fatty acid ester for a milk beverage nor recognizes the problem of emulsion stability of milk beverages. Therefore, the present invention is not obvious from the combination of Seiden, Babayan and Rule.

In Talkington, there is a description of beverage, but no description of a milk beverage. The presence of the milk engenders the problem to which the present invention is directed. Therefore, the present invention is not obvious from the combination of Talkington and Rule.

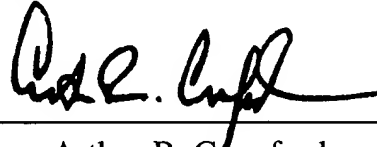
For the above reasons, it is respectfully submitted that the claims of this application define inventive subject matter. Reconsideration and allowance are solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Arthur R. Crawford
Reg. No. 25,327

ARC:lsp
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

The next to last paragraph beginning at page 24:

67): Decaglycerol myristic acid ester obtained in Production

Example 1

The last paragraph on page 4:

76): Decaglycerol palmitic acid ester obtained in Production

Example 2

IN THE CLAIMS

6. (Amended) A milk beverage according to claim 5, wherein ~~the monoester~~
~~content of said sucrose fatty acid ester is~~ contains not less than 50 % by weight
monoester, and an ester-constituting fatty acid of said sucrose fatty acid ester contains
palmitic acid or stearic acid in an amount of not less than 70 % by weight.

BEST AVAILABLE COPY